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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,819	03/29/2004	Lutz Brugemann	P8183US	1015

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EXAMINER	
HO, ALLEN C	

ART UNIT	PAPER NUMBER
2882	

DATE MAILED: 11/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/810,819	BRUGEMANN ET AL.	
	Examiner	Art Unit	
	Allen C. Ho	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *0304,0504,0805*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

(1) Page 10, line 2, "7" should be replaced by --6--;

(2) Page 10, line 11, "plane" should be replaced by --plate--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 6, 7, and 10-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Koinuma *et al.* (U. S. Patent No. 6,459,763 B1).

With regard to claim 1, Koinuma *et al.* disclosed an x-ray optical system for examination of a sample selected from a plurality of samples of a sample library, the system comprising: an x-ray source (**1**); a flat plate (**4**) on which the plurality of samples is disposed; an x-ray detector (**7**); means for displacing the flat plate in an x-ray plane substantially parallel to an upper surface of the plate (X and Y axes; column 5, lines 41-45); means for displacing the flat plate in a z-direction (Z axis; column 5, lines 41-45); means for rotating the flat plate about a first axis (Z axis) parallel to the z-axis (ϕ axis; column 5, lines 41-45); and means for rotating the flat plate

about a second axis (X axis) extending through the xy-plane (tilting about the X axis; column 5, lines 41-45).

With regard to claim 2, Koinuma *et al.* disclosed the system of claim 1, wherein the first axis (Z) and the second axis (X) intersect.

With regard to claim 3, Koinuma *et al.* disclosed the system of claim 2, wherein the flat plate can be displaced such that each sample of the sample library can be displaced into a point of intersection between the first axis and the second axis (when a sample is positioned at the origin).

With regard to claim 6, Koinuma *et al.* disclosed the system of claim 1, wherein the source and the detector can be positioned on a same side of the flat plate (backscattering geometry shown in Figs. 3, 4).

With regard to claim 7, Koinuma *et al.* disclosed the system of claim 1, wherein the source and the detector can be positioned on opposite sides of the flat plate (The detector can be rotated to an opposite side of the flat plate via rotation shaft 5B. Also see Figs. 22 and 23).

With regard to claim 10, Koinuma *et al.* disclosed a method for examining a plurality of samples disposed on a flat plate as a sample library, the method comprising the steps of:

a) selecting one of the plurality of samples and positioning the selected sample into a measuring position for illumination with x-ray radiation from an x-ray source (**1**) and for passage of x-ray radiation from the selected sample to an x-ray detector (**7**);

b) displacing the selected sample in at least one of an x-direction (X axis) lying in a plane of the flat plate, a y-direction (Y axis) perpendicular to the x-direction and lying in the

plane of the flat plate, and a z-direction (Z axis) perpendicular to both the x-direction and the y-direction (column 5, lines 41-45);

c) rotating the selected sample about at least one of a first axis (Z axis) perpendicular to the x-direction and the y-direction and a second axis (X axis) lying in the plane of the flat plate, wherein steps b) and c) are performed to optimize radiation from the selected sample on the detector (rocking curves are obtained by rotation of the sample); and

c) carrying out a measurement (rocking curves) of the selected sample following steps a) through c).

With regard to claim 11, Koinuma *et al.* disclosed the method of claim 10, wherein the selected samples is moved about a respective measuring position in the plate plane to optimize x-ray radiation scattered to the detector (when diffracted x-rays from selected samples are detected , Fig. 6(b)).

With regard to claim 12, Koinuma *et al.* disclosed the method of claim 10, wherein the selected sample is moved linearly in the z-direction (column 5, lines 41-45).

With regard to claim 13, Koinuma *et al.* disclosed the method of claim 10, wherein at least one motion of the selected sample along the x-direction, along the y-direction, along the z-direction, about the first axis, and about the second axis is wobbled during a respective measurement (rocking curves).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koinuma *et al.* (U. S. Patent No. 6,459,763 B1) as applied to claim 1 above, and further in view of Cullity.

With regard to claims 4 and 5, Koinuma *et al.* disclosed the system of claim 1. However, Koinuma *et al.* failed to teach that the flat plate is rotatable about a third axis, wherein the first axis, the second axis, and the third axis are substantially orthogonal.

Cullity disclosed a three-circle goniometer for positioning a crystal sample in an x-ray diffraction apparatus. The goniometer comprises three mutually perpendicular axes of rotation, two horizontal (x axis and y axis) and one vertical (z axis) (p. 155 and Fig. 5-7). Cullity taught that this goniometer is required when it is necessary to set the crystal sample in some particular orientation relative to the x-ray beam.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a means for rotating the flat plate about a third axis (Y axis) perpendicular to the first axis (Z axis) and the second axis (X axis), since a person would be motivated to measure a particular diffracted x-ray beam by orienting the sample relative to the x-ray beam.

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koinuma *et al.* (U. S. Patent No. 6,459,763 B1) as applied to claim 1 above, and further in view of Newman *et al.* (U. S. Pub. No. 2002/0067800 A1).

With regard to claim 8, Koinuma *et al.* disclosed the system of claim 1. However, Koinuma *et al.* failed to teach that the flat plate has openings at sample positions for transmission measurement.

Newman *et al.* disclosed a sample holder plate (**102**) that comprises openings at sample positions (**108**) for transmission measurements. Newman *et al.* taught that the sample holder plate is useful for identification and optimization of ideal crystallization conditions.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to employ the flat plate disclosed by Newman *et al.*, since a person would be motivated to determine ideal crystallization conditions while the crystals are being grown.

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koinuma *et al.* (U. S. Patent No. 6,459,763 B1) as applied to claim 1 above.

With regard to claim 9, Koinuma *et al.* disclosed the system of claim 1. However, Koinuma *et al.* failed to teach that the flat plate is impermeable to the x-ray radiation for reflection measurement.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a flat plate that is impermeable to the x-ray radiation for reflection measurement, since a person would be motivated to prevent the exit of transmitted x-rays by providing proper shielding.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

(1) He *et al.* (U. S. Patent No. 6,859,520 B2) disclosed a transmission x-ray diffraction screening system.

(2) Blomsma *et al.* (U. S. Pub. No. 2005/0002487 A1) disclosed a method for performing powder diffraction analysis.

(3) Durst *et al.* (U. S. Patent No. 6,836,532 B2) disclosed a diffraction system for biological crystal screening.

(4) Yamano *et al.* (U. S. Pub. No. 2004/0258203 A1) disclosed a crystal evaluating device.

(5) He *et al.* (U. S. Patent No. 6,718,008 B1) disclosed an x-ray diffraction screening system.

(6) Nicolich *et al.* (U. S. Patent No. 6,697,454 B1) disclosed x-ray analytical techniques applied to combinatorial library screening.

(7) Chang *et al.* (U. S. Patent No. 6,577,705 B1) disclosed combinatorial material analysis using x-ray capillary optics.

(8) Lehmann (U. S. Patent No. 6,507,636 B1) disclosed a rapid x-ray diffraction screening method of polymorph libraries created in multi-well plates.

(9) Olson *et al.* (U. S. Patent No. 6,404,849 B1) disclosed automated sample handling for x-ray crystallography.

(10) Hajduk *et al.* (U. S. Patent No. 6,371,640) disclosed an apparatus and method for characterizing libraries of different materials using x-ray scattering.

(11) Thomas, Jr. (U. S. Patent No. 3,564,240) disclosed a goniometer for x-ray diffraction apparatus.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (571) 272-2491. The examiner can normally be reached on Monday - Friday from 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached at (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Allen C. Ho

Allen C. Ho
Primary Examiner
Art Unit 2882

25 November 2005